

## **ATTACHMENT E**

## Five-Year Review Site Inspection Checklist

I. SITE INFORMATION	
Site name: Vogel Paint and Wax Superfund Site	Date of inspection: December 12, 2013
Location and Region: Maurice, IA. EPA Region 7	EPA ID: IAD980630487
Agency, office, or company leading the five-year review: U.S. Army Corps of Engineers – Kansas City District	Weather/temperature: Clear, sunny, approximately 1-2 inches snow on the ground, temperature minus 7 degrees Fahrenheit
<b>Remedy Includes:</b> (Check all that apply) <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input type="checkbox"/> Landfill cover/containment  <input type="checkbox"/> Access controls  <input checked="" type="checkbox"/> Institutional controls  <input checked="" type="checkbox"/> Groundwater pump and treatment  <input type="checkbox"/> Surface water collection and treatment  <input type="checkbox"/> Other _____             </div> <div style="width: 50%;"> <input type="checkbox"/> Monitored natural attenuation  <input type="checkbox"/> Groundwater containment  <input type="checkbox"/> Vertical barrier walls             </div> </div>	
<b>Attachments:</b> <input type="checkbox"/> Inspection team roster attached <input type="checkbox"/> Site map attached	
II. INTERVIEWS (Check all that apply)	
1. <b>O&amp;M site manager</b> <u>Scott Heemstra</u> <u>Corporate Director of Manufacturing</u> <u>10-Dec-2013</u> <div style="display: flex; justify-content: space-between; margin-left: 100px;"> <span>Name</span> <span>Title</span> <span>Date</span> </div> Interviewed <input checked="" type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone    Phone no. _____ Problems, suggestions; <input type="checkbox"/> Report attached <u>No problems or suggestions were reported during the interview</u>	
2. <b>O&amp;M staff</b> _____ <div style="display: flex; justify-content: space-between; margin-left: 100px;"> <span>Name</span> <span>Title</span> <span>Date</span> </div> Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone    Phone no. _____ Problems, suggestions; <input type="checkbox"/> Report attached _____	

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Iowa Department of Natural Resources

Contact Bob Drustrup Environmental Engineer 10-Dec-2013 515-281-8900  
Name Title Date Phone no.

Problems; suggestions; ☐ Report attached Would like to see the groundwater treatment plant removed due to its current condition. IDNR would also like the Bos and Neiss groundwater wells removed

Agency \_\_\_\_\_

Contact \_\_\_\_\_  
Name Title Date Phone no.

Problems; suggestions; ☐ Report attached \_\_\_\_\_

Agency \_\_\_\_\_

Contact \_\_\_\_\_  
Name Title Date Phone no.

Problems; suggestions; ☐ Report attached \_\_\_\_\_

Agency \_\_\_\_\_

Contact \_\_\_\_\_  
Name Title Date Phone no.

Problems; suggestions; ☐ Report attached \_\_\_\_\_

4. **Other interviews** (optional) ☐ Report attached.


III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)			
1.	<b>O&amp;M Documents</b> <input checked="" type="checkbox"/> O&M manual <input type="checkbox"/> As-built drawings <input type="checkbox"/> Maintenance logs Remarks _____	<input checked="" type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
2.	<b>Site-Specific Health and Safety Plan</b> <input type="checkbox"/> Contingency plan/emergency response plan Remarks <u>Site activities have not occurred over the past 5 years aside from the pilot study and groundwater sampling.</u>	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
3.	<b>O&amp;M and OSHA Training Records</b> Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> N/A
4.	<b>Permits and Service Agreements</b> <input type="checkbox"/> Air discharge permit <input type="checkbox"/> Effluent discharge <input type="checkbox"/> Waste disposal, POTW <input type="checkbox"/> Other permits Remarks <u>Currently no air or effluent discharge is generated at the site, the permits were not reviewed.</u>	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
5.	<b>Gas Generation Records</b> Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
6.	<b>Settlement Monument Records</b> Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
7.	<b>Groundwater Monitoring Records</b> Remarks <u>Annual groundwater monitoring reports were reviewed.</u>	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A
8.	<b>Leachate Extraction Records</b> Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
9.	<b>Discharge Compliance Records</b> <input type="checkbox"/> Air <input type="checkbox"/> Water (effluent) Remarks _____	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
10.	<b>Daily Access/Security Logs</b> Remarks <u>The treatment plant has been inactive since 2009.</u>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A

IV. O&M COSTS																																																			
1.	<b>O&amp;M Organization</b> <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> State in-house  <input type="checkbox"/> PRP in-house  <input type="checkbox"/> Federal Facility in-house  <input type="checkbox"/> Other _____ </div> <div> <input type="checkbox"/> Contractor for State  <input checked="" type="checkbox"/> Contractor for PRP  <input type="checkbox"/> Contractor for Federal Facility </div> </div>																																																		
2.	<b>O&amp;M Cost Records (was not reviewed)</b> <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input type="checkbox"/> Funding mechanism/agreement in place Original O&M cost estimate _____ <input type="checkbox"/> Breakdown attached  <div style="text-align: center;">Total annual cost by year for review period if available</div> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">From _____</td> <td style="width: 20%;">To _____</td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> <td><input type="checkbox"/> Breakdown attached</td> <td></td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td></td> <td><input type="checkbox"/> Breakdown attached</td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> <td><input type="checkbox"/> Breakdown attached</td> <td></td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td></td> <td><input type="checkbox"/> Breakdown attached</td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> <td><input type="checkbox"/> Breakdown attached</td> <td></td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td></td> <td><input type="checkbox"/> Breakdown attached</td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> <td><input type="checkbox"/> Breakdown attached</td> <td></td> </tr> </table>			From _____	To _____					Date	Date	Total cost		<input type="checkbox"/> Breakdown attached		From _____	To _____			<input type="checkbox"/> Breakdown attached		Date	Date	Total cost		<input type="checkbox"/> Breakdown attached		From _____	To _____			<input type="checkbox"/> Breakdown attached		Date	Date	Total cost		<input type="checkbox"/> Breakdown attached		From _____	To _____			<input type="checkbox"/> Breakdown attached		Date	Date	Total cost		<input type="checkbox"/> Breakdown attached	
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3.	<b>Unanticipated or Unusually High O&amp;M Costs During Review Period</b> Describe costs and reasons: <u>The groundwater treatment plant has not been used for remediation since 2004. The extraction system was utilized for irrigation of the phytoremediation trees from 2007 to 2009. O&amp;M costs incurred over this review period would include groundwater sampling costs and any miscellaneous housekeeping activities (mowing, maintenance to wells, free product removal, etc.)</u> _____ _____																																																		
<b>V. ACCESS AND INSTITUTIONAL CONTROLS</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A																																																			
<b>A. Fencing</b>																																																			
1.	<b>Fencing damaged</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Gates secured <input checked="" type="checkbox"/> N/A Remarks <u>Fencing is not required as an IC, however the site does maintain a gate and property fencing. All were in good condition.</u>																																																		
<b>B. Other Access Restrictions</b>																																																			
1.	<b>Signs and other security measures</b> <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> N/A Remarks _____																																																		

<b>C. Institutional Controls (ICs)</b>				
1.	<b>Implementation and enforcement</b> Site conditions imply ICs not properly implemented <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A</span> Site conditions imply ICs not being fully enforced <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A</span>  Type of monitoring (e.g., self-reporting, drive by) <u>Deed restrictions</u> Frequency _____ Responsible party/agency _____ Contact _____ <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <span>Name</span> <span>Title</span> <span>Date</span> <span>Phone no.</span> </div> Reporting is up-to-date <span style="float: right;"><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A</span> Reports are verified by the lead agency <span style="float: right;"><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A</span>  Specific requirements in deed or decision documents have been met <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</span> Violations have been reported <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</span> Other problems or suggestions: <input checked="" type="checkbox"/> Report attached <u>See issues and recommendations made in the five-year review report.</u> _____ _____ _____			
2.	<b>Adequacy</b> <span style="margin-left: 20px;"><input type="checkbox"/> ICs are adequate</span> <span style="margin-left: 20px;"><input checked="" type="checkbox"/> ICs are inadequate</span> <span style="float: right;"><input type="checkbox"/> N/A</span> Remarks <u>For the short term, the ICs are adequate, however an Environmental Covenant is preferred in order to prevent potential contaminant pathways from developing in the future.</u> _____ _____			
<b>D. General</b>				
1.	<b>Vandalism/trespassing</b> <span style="margin-left: 20px;"><input type="checkbox"/> Location shown on site map</span> <span style="margin-left: 20px;"><input checked="" type="checkbox"/> No vandalism evident</span> Remarks _____ _____			
2.	<b>Land use changes on site</b> <span style="margin-left: 20px;"><input checked="" type="checkbox"/> N/A</span> Remarks <u>A change in land use is unlikely at the site.</u> _____ _____			
3.	<b>Land use changes off site</b> <span style="margin-left: 20px;"><input checked="" type="checkbox"/> N/A</span> Remarks <u>A change in land use nearby the site is unlikely.</u> _____ _____			
<b>VI. GENERAL SITE CONDITIONS</b>				
<b>A. Roads</b> <span style="margin-left: 20px;"><input type="checkbox"/> Applicable</span> <span style="margin-left: 20px;"><input checked="" type="checkbox"/> N/A</span>				
1.	<b>Roads damaged</b> <span style="margin-left: 20px;"><input type="checkbox"/> Location shown on site map</span> <span style="margin-left: 20px;"><input type="checkbox"/> Roads adequate</span> <span style="float: right;"><input type="checkbox"/> N/A</span> Remarks _____ _____ _____			

<b>B. Other Site Conditions</b>		
Remarks _____ _____ _____ _____ _____		
<b>VII. LANDFILL COVERS</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
<b>A. Landfill Surface</b>		
1.	<b>Settlement</b> (Low spots) Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Settlement not evident Depth _____
2.	<b>Cracks</b> Lengths _____ Widths _____ Depths _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Cracking not evident
3.	<b>Erosion</b> Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Erosion not evident Depth _____
4.	<b>Holes</b> Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Holes not evident Depth _____
5.	<b>Vegetative Cover</b> <input type="checkbox"/> Grass <input type="checkbox"/> Cover properly established <input type="checkbox"/> No signs of stress <input type="checkbox"/> Trees/Shrubs (indicate size and locations on a diagram) Remarks _____	
6.	<b>Alternative Cover (armored rock, concrete, etc.)</b> <input type="checkbox"/> N/A Remarks _____	
7.	<b>Bulges</b> Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Bulges not evident Height _____
8.	<b>Wet Areas/Water Damage</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input type="checkbox"/> Wet areas  <input type="checkbox"/> Ponding  <input type="checkbox"/> Seeps  <input type="checkbox"/> Soft subgrade          Remarks _____       </div> <div style="width: 35%;"> <input type="checkbox"/> Wet areas/water damage not evident  <input type="checkbox"/> Location shown on site map  <input type="checkbox"/> Location shown on site map  <input type="checkbox"/> Location shown on site map  <input type="checkbox"/> Location shown on site map       </div> <div style="width: 30%;">         Areal extent _____          Areal extent _____          Areal extent _____          Areal extent _____       </div> </div>	

9.	<b>Slope Instability</b>	<input type="checkbox"/> Slides	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of slope instability
	Areal extent _____			
	Remarks _____			
<b>B. Benches</b>				
	<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A		
	(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)			
1.	<b>Flows Bypass Bench</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay	
	Remarks _____			
2.	<b>Bench Breached</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay	
	Remarks _____			
3.	<b>Bench Overtopped</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay	
	Remarks _____			
<b>C. Letdown Channels</b>				
	<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A		
	(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)			
1.	<b>Settlement</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of settlement	
	Areal extent _____	Depth _____		
	Remarks _____			
2.	<b>Material Degradation</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of degradation	
	Material type _____	Areal extent _____		
	Remarks _____			
3.	<b>Erosion</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of erosion	
	Areal extent _____	Depth _____		
	Remarks _____			



4.	<b>Undercutting</b> Areal extent _____ Depth _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of undercutting	
5.	<b>Obstructions</b> Type _____ <input type="checkbox"/> Location shown on site map    Areal extent _____ Size _____ Remarks _____	<input type="checkbox"/> No obstructions	
6.	<b>Excessive Vegetative Growth</b> Type _____ <input type="checkbox"/> No evidence of excessive growth <input type="checkbox"/> Vegetation in channels does not obstruct flow <input type="checkbox"/> Location shown on site map    Areal extent _____ Remarks _____		
<b>D. Cover Penetrations</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
1.	<b>Gas Vents</b> <input type="checkbox"/> Active <input checked="" type="checkbox"/> Passive <input type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks <u>Gas vents are not associated with a landfill cover, but are used to encourage natural degradation of source material.</u>		
2.	<b>Gas Monitoring Probes</b> <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs Maintenance <input checked="" type="checkbox"/> N/A Remarks _____		
3.	<b>Monitoring Wells</b> (within surface area of landfill) <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs Maintenance <input checked="" type="checkbox"/> N/A Remarks _____		
4.	<b>Leachate Extraction Wells</b> <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs Maintenance <input checked="" type="checkbox"/> N/A Remarks _____		
5.	<b>Settlement Monuments</b> <input type="checkbox"/> Located <input type="checkbox"/> Routinely surveyed <input checked="" type="checkbox"/> N/A Remarks _____		

<b>E. Gas Collection and Treatment</b>			<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	<b>Gas Treatment Facilities</b> <input type="checkbox"/> Flaring <input type="checkbox"/> Thermal destruction <input type="checkbox"/> Collection for reuse <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____			
2.	<b>Gas Collection Wells, Manifolds and Piping</b> <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____			
3.	<b>Gas Monitoring Facilities</b> ( <i>e.g.</i> , gas monitoring of adjacent homes or buildings) <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ _____			
<b>F. Cover Drainage Layer</b>			<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	<b>Outlet Pipes Inspected</b> Remarks _____ _____	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
2.	<b>Outlet Rock Inspected</b> Remarks _____ _____	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
<b>G. Detention/Sedimentation Ponds</b>			<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	<b>Siltation</b> Areal extent _____ Depth _____ <input type="checkbox"/> Siltation not evident Remarks _____ _____	<input type="checkbox"/> N/A		
2.	<b>Erosion</b> Areal extent _____ Depth _____ <input type="checkbox"/> Erosion not evident Remarks _____ _____			
3.	<b>Outlet Works</b> Remarks _____ _____	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
4.	<b>Dam</b> Remarks _____ _____	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	

<b>H. Retaining Walls</b>		<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A
1.	<b>Deformations</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Deformation not evident Horizontal displacement _____ Vertical displacement _____ Rotational displacement _____ Remarks _____ _____	
2.	<b>Degradation</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Degradation not evident Remarks _____ _____	
<b>I. Perimeter Ditches/Off-Site Discharge</b>		<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A
1.	<b>Siltation</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Siltation not evident Areal extent _____ Depth _____ Remarks _____ _____	
2.	<b>Vegetative Growth</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A <input type="checkbox"/> Vegetation does not impede flow Areal extent _____ Type _____ Remarks _____ _____	
3.	<b>Erosion</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Erosion not evident Areal extent _____ Depth _____ Remarks _____ _____	
4.	<b>Discharge Structure</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks _____ _____	
<b>VIII. VERTICAL BARRIER WALLS</b>		<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A
1.	<b>Settlement</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Settlement not evident Areal extent _____ Depth _____ Remarks _____ _____	
2.	<b>Performance Monitoring</b> Type of monitoring _____ <input type="checkbox"/> Performance not monitored Frequency _____ <input type="checkbox"/> Evidence of breaching Head differential _____ Remarks _____ _____	

<b>IX. GROUNDWATER/SURFACE WATER REMEDIES</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A	
<b>A. Groundwater Extraction Wells, Pumps, and Pipelines</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A	
1.	<b>Pumps, Wellhead Plumbing, and Electrical</b> <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> All required wells properly operating <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks <u>All wells were observed to be in good condition, there were no problems reported in the latest Annual Groundwater Monitoring Report.</u>
2.	<b>Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances</b> <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____
3.	<b>Spare Parts and Equipment</b> <input checked="" type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks _____
<b>B. Surface Water Collection Structures, Pumps, and Pipelines</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A	
1.	<b>Collection Structures, Pumps, and Electrical</b> <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____
2.	<b>Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances</b> <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____
3.	<b>Spare Parts and Equipment</b> <input type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks _____

<b>C. Treatment System</b>		<input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A
1.	<b>Treatment Train</b> (Check components that apply)	<input type="checkbox"/> Bioremediation
	<input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input checked="" type="checkbox"/> Air stripping <input type="checkbox"/> Carbon adsorbers <input type="checkbox"/> Filters _____ <input type="checkbox"/> Additive (e.g., chelation agent, flocculent) _____ <input type="checkbox"/> Others _____ <input type="checkbox"/> Good condition <input checked="" type="checkbox"/> Needs Maintenance <input type="checkbox"/> Sampling ports properly marked and functional <input type="checkbox"/> Sampling/maintenance log displayed and up to date <input checked="" type="checkbox"/> Equipment properly identified <input type="checkbox"/> Quantity of groundwater treated annually _____ <input type="checkbox"/> Quantity of surface water treated annually _____	
	Remarks <u>Air stripper is currently inoperable, a bioremediation pilot study using phytoremediation has been operating at the site since 2007, however the remedy has not been formally approved in a decision document.</u>	
2.	<b>Electrical Enclosures and Panels</b> (properly rated and functional) <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____	
3.	<b>Tanks, Vaults, Storage Vessels</b> <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs Maintenance Remarks _____	
4.	<b>Discharge Structure and Appurtenances</b> <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____	
5.	<b>Treatment Building(s)</b> <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair <input type="checkbox"/> Chemicals and equipment properly stored Remarks _____	
6.	<b>Monitoring Wells</b> (pump and treatment remedy) <input checked="" type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____	
<b>D. Monitoring Data</b>		
1.	<b>Monitoring Data</b> <input checked="" type="checkbox"/> Is routinely submitted on time <input checked="" type="checkbox"/> Is of acceptable quality	
2.	<b>Monitoring data suggests:</b> <input type="checkbox"/> Groundwater plume is effectively contained <input type="checkbox"/> Contaminant concentrations are declining	

<b>D. Monitored Natural Attenuation</b>			
1.	<b>Monitoring Wells</b> (natural attenuation remedy) <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks <u>Monitoring Natural Attenuation is currently being utilized though a decision document has not formally been approved for the change in remedy.</u>		
<b>X. OTHER REMEDIES</b>			
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.			
<b>XI. OVERALL OBSERVATIONS</b>			
<b>A. Implementation of the Remedy</b>			
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). <u>Currently the use of MNA and phytoremediation is not containing the plume within the site boundary, as required in the decision documents. A decision document or amendment is recommended to address the change in remedy at the site as well as to address the point of compliance which may not be attainable under the current remedy.</u>			
<b>B. Adequacy of O&amp;M</b>			
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. <u>See issues and recommendations made in the five-year review report.</u>			

<b>C.</b>	<b>Early Indicators of Potential Remedy Problems</b>
<p>Describe issues and observations such as unexpected changes in the cost or scope of O&amp;M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.</p> <p><u>No such issues were noted during the site inspection, nor were comments provided during the interviews which would suggest current O&amp;M costs are a concern.</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	
<b>D.</b>	<b>Opportunities for Optimization</b>
<p>Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.</p> <p><u>See recommendations made in the five-year review report regarding optimization.</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	